



UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
Address: COMMISSIONER FOR PATENTS
P.O. Box 1450
Alexandria, Virginia 22313-1450
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/088,913	05/07/2002	Michael O. Thompson	3672-0144P	8909
2292	7590	05/06/2004	EXAMINER	
BIRCH STEWART KOLASCH & BIRCH PO BOX 747 FALLS CHURCH, VA 22040-0747			HUR, JUNG H	
			ART UNIT	PAPER NUMBER
			2824	

DATE MAILED: 05/06/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No. 10/088,913	Applicant(s) THOMPSON ET AL.	
	Examiner Jung (John) Hur	Art Unit 2824	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1) ☒ Responsive to communication(s) filed on 07 November 2003.

2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.

3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4) ☒ Claim(s) 1-12 is/are pending in the application.

4a) Of the above claim(s) 6-11 and 12/10 is/are withdrawn from consideration.

5) ☐ Claim(s) _____ is/are allowed.

6) ☒ Claim(s) 1 and 12/1 is/are rejected.

7) ☒ Claim(s) 2-5 is/are objected to.

8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9) ☒ The specification is objected to by the Examiner.

10) ☒ The drawing(s) filed on 07 May 2002 is/are: a) ☐ accepted or b) ☒ objected to by the Examiner.
 Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
 Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

 a) ☒ All b) ☐ Some * c) ☐ None of:

 1. ☐ Certified copies of the priority documents have been received.

 2. ☐ Certified copies of the priority documents have been received in Application No. _____.

 3. ☒ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

 * See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) Paper No(s)/Mail Date <u>4/10/02</u> .	4) <input type="checkbox"/> Interview Summary (PTO-413) Paper No(s)/Mail Date. _____. 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) 6) <input checked="" type="checkbox"/> Other: <u>search history</u> .
---	--

DETAILED ACTION

Election/Restrictions

1. Acknowledgment is made of applicant's Election, filed 07 November 2003, with traverse to prosecute the invention of Group I, Species I, claims 1-5 and 12/1.

Claims 1-12 are pending in the application, of which claims 6-11 and 12/10 are withdrawn from further consideration by the examiner, 37 CFR 1.142(b), as being drawn to a non-elected invention.

Information Disclosure Statement

2. Acknowledgment is made of applicant's Information Disclosure Statement (IDS) Form PTO-1449, filed 10 April 2002. The information disclosed therein was considered.

3. The recitation of references in the specification, for example, on pages 3 and 4 of Substitute Specification, is not a proper information disclosure statement. 37 CFR 1.98(b) requires a list of all patents, publications, or other information submitted for consideration by the Office, and MPEP § 609 A(1) states, "the list may not be incorporated into the specification but must be submitted in a separate paper." Therefore, unless the references have been cited by the examiner on form PTO-892, they have not been considered.

Drawings

4. Figures 1-4 should be designated by a legend such as --Prior Art-- because only that which is old is illustrated. See MPEP § 608.02(g). A proposed drawing correction

or corrected drawings are required in reply to the Office action to avoid abandonment of the application. The objection to the drawings will not be held in abeyance.

5. The drawings are objected to because they include, near the right margin, a long vertical line that does not appear to be a part of each figure but crosses over other parts (see, for example, Figs. 5, 6, 8 and 9). A proposed drawing correction or corrected drawings are required in reply to the Office action to avoid abandonment of the application. The objection to the drawings will not be held in abeyance.

Specification

6. Applicant is reminded of the proper language and format for an abstract of the disclosure.

The abstract should be in narrative form and generally limited to a single paragraph on a separate sheet within the range of 50 to 150 words. It is important that the abstract not exceed 150 words in length since the space provided for the abstract on the computer tape used by the printer is limited. The form and legal phraseology often used in patent claims, such as "means" and "said," should be avoided. The abstract should describe the disclosure sufficiently to assist readers in deciding whether there is a need for consulting the full patent text for details.

The language should be clear and concise and should not repeat information given in the title. It should avoid using phrases which can be implied, such as, "The disclosure concerns," "The disclosure defined by this invention," "The disclosure describes," etc.

7. The abstract of the disclosure is objected to because it exceeds 150 words in length. Correction is required. See MPEP § 608.01(b).

Claim Objections

8. Claim 12 is objected to under 37 CFR 1.75(c) as being in improper form because a multiple dependent claim should refer to other claims in the alternative only. See

MPEP § 608.01(n). For the purpose of examination, claim 12 is understood as referring to other claims in the alternative; claim 12/10 is then withdrawn from further consideration by the examiner as being drawn to a non-elected invention, as recited above.

9. Claim 12/1 is objected to under 37 CFR 1.75(c), as being of improper dependent form for failing to further limit the subject matter of a previous claim. Applicant is required to cancel the claim(s), or amend the claim(s) to place the claim(s) in proper dependent form, or rewrite the claim(s) in independent form. Specifically, the limitations recited in claim 12/1 do not further limit the device of claim 1. It is suggested that this claim be rewritten in independent form, expressly incorporating all the limitations of claim 1; the claim will be understood as such, for the purpose of this examination.

Claim Rejections - 35 USC § 103

10. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

11. Claim 1 is rejected under 35 U.S.C. 103(a) as being unpatentable over Kuroda (U.S. Pat. No. 5,487,029) in view of Clemons (U.S. Pat. No. 4,599,709).

Kuroda, for example in Figs. 1 and 2, discloses a non-volatile passive matrix memory device comprising ferroelectric memory cells (for example, C0 - C7 in Fig. 2); word lines (for example, W00 - W07 in Fig. 2) and bit lines (for example, D0 - D7 in Fig.

2) that are orthogonal to each other; the word lines divided into a number of segments (for example, BLOCK (0,0) through BLOCK (0,7) in Fig. 1), each segment comprising and being defined by a plurality of adjoining bit lines (for example, D0 - D7 for BLOCK (1,0)); a plurality of sensing means (for example, SA in WRC0 - WRC7), each being adapted for sensing the charge flow in the bit line connected therewith in order to determine a logical value stored in the memory cell defined by the bit line (see, for example, column 12, lines 42-54).

However, Kuroda does not disclose means for connecting each bit line assigned to a segment with an associated sensing means, thus enabling simultaneous connection of all memory cells assigned to a word line on a segment for readout via the corresponding bit lines of the segment.

Clemons, for example in Figs. 2 and 3, discloses means (for example, via T200 - T203 controlled by BYTE BLOCK DECODER) for connecting each bit line (for example, bit lines for columns C11 - C14) assigned to a segment (for example, BYTE BLOCK 1) with an associated sensing means (for example, SA1 - SA4 via I/O SWITCHES in Fig. 3), thus enabling simultaneous connection of all memory cells (for example, M111 - M114) assigned to a word line (for example, R1) on a segment (for example, BYTE BLOCK 1) for readout via the corresponding bit lines (for example, bit lines for columns C11 - C14) of the segment.

It would have been obvious at the time the invention was made to a person having ordinary skill in the art to modify the device of Kuroda by incorporating the means of Clemons for connecting each bit line assigned to a segment with an associated sensing means, thus enabling simultaneous connection of all memory cells assigned to a word

line on a segment for readout via the corresponding bit lines of the segment, as an equivalent alternative means for segmenting and simultaneously accessing a byte (or a word or other widths of bits) of information from the memory, for the purpose of having a ferroelectric memory organization that provides for improved utilization of spare columns, while allowing for subdivision of the memory into portions (see Clemons column 3, lines 40-43).

12. Claim 12/1 is rejected under 35 U.S.C. 103(a) as being unpatentable over Kuroda (U.S. Pat. No. 5,487,029) in view of Clemons (U.S. Pat. No. 4,599,709) as applied to claim 1 above, and further in view of Seyyedy (U.S. Pat. No. 5,969,380).

The combination of Kuroda and Clemons discloses a non-volatile passive matrix memory device as in claim 1 above, with the exception of a volumetric data storage apparatus with a plurality of stacked layers, each layer comprising one of said non-volatile passive matrix memory devices. Seyyedy, for example in Figs. 1 and 2, discloses a ferroelectric volumetric data storage apparatus with a plurality of stacked layers (for example, four layers in Fig. 1 and three layers in Fig. 2), each layer comprising one of non-volatile passive matrix memory devices (planar ferroelectric memory arrays). It would have been obvious at the time the invention was made to a person having ordinary skill in the art to stack a plurality of devices (as discloses in the above combination of Kuroda and Clemons) in a volumetric data storage apparatus, as in Seyyedy, for the purpose of increasing the density of memory cells over a given substrate area.

Allowable Subject Matter

13. Claims 2-6 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

The following is a statement of reasons for the indication of allowable subject matter:

Regarding claim 2, the prior arts of record do not disclose or suggest a non-volatile passive matrix memory device wherein said means for simultaneous connection of each bit line of a segment with associated sensing means during addressing are multiplexers (plurality).

Conclusion

14. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

Kim et al. (U.S. Pat. No. 5,293,350) discloses a multiplexer simultaneously selecting one bit line from each segment of memory.


Rapp (U.S. Pat. No. 5,424,997) discloses a multiplexer that selects all the bit lines in a segment.

15. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Jung (John) Hur whose telephone number is (571) 272-1870. The examiner can normally be reached on M-F 6:30 AM - 3:00 PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Richard Elms can be reached on (571) 272-1869. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

jhh


VAN THU NGUYEN
PRIMARY EXAMINER